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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,287	03/28/2001	Young-Ro Byun	55761	6676

21874 7590 10/14/2003

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EXAMINER	
BENNETT, RACHEL M	

ART UNIT	PAPER NUMBER
1615	9

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/806,287	Applicant(s) BYUN ET AL.	
	Examiner Rachel M. Bennett	Art Unit 1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-8 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6-8 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/11/03 has been entered.

Specification

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the treatment of diseases listed in claim 11, does not reasonably provide enablement for prevention of such diseases. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Wands, 8 USPQ2d 1400 (Fed. Cir. 1988). Among these factors are: (1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary. When the above factors are weighed, it is the examiner's position that one skilled in the art could not practice the invention without undue experimentation.

(1) The nature of the invention:

The invention provides a pharmaceutical composition for the treatment of diseases selected from the group consisting of head and neck cancer, skin cancer, lung cancer, breast cancer, cervical cancer, bladder cancer, and

acute promyelocytic leukemia comprising an effective amount of the drug release system according to claim 1,6,7,or 8 as an active ingredient and a pharmaceutically acceptable carrier.

(2) The state of the prior art

The composition of mixing biodegradable polymers and an amphiphilic AB type di-block polymer together with retinoic acid is known. However, the art does not teach this composition for the prevention of the various cancers listed above.

(3) The relative skill of those in the art

The relative skill of the those in the art is high.

(4) The predictability or unpredictability of the art

The unpredictability of the polymer art is very high.

(5) The breadth of the claims

The claim is very broad.

(6) The amount of direction or guidance presented

The specification does not provide any written description of the method of preventing diseases selected from the group consisting of head and neck cancer, skin cancer, lung cancer, breast cancer, cervical cancer, bladder cancer, and acute promyelocytic leukemia comprising an effective amount of the drug release system according to claim 1,6,7,or 8 as an active ingredient and a pharmaceutically acceptable carrier.

(7) The presence or absence of working examples

As stated above, the specification does not provide any written description of the method of preventing diseases selected from the group consisting of head and neck cancer, skin cancer, lung cancer, breast cancer, cervical cancer, bladder cancer, and acute promyelocytic leukemia comprising an effective amount of the drug release system according to claim 1,6,7,or 8 as an active ingredient and a pharmaceutically acceptable carrier.

(8) The quantity of experimentation necessary

One of ordinary skill in the art would be burdened with undue experimentation study to determine if the claimed composition prevented diseases selected from the group consisting of head and neck cancer, skin cancer, lung cancer, breast cancer, cervical cancer, bladder cancer, and acute promyelocytic leukemia.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants newly added limitation of "mixing ratio of the biodegradable polymer and the amphiphilic block polymer is 1:0-20% by weight" reads on a controlled drug release system for retinoic acid characterized in that retinoic acid is incorporated into a microsphere

prepared by mixing a biodegradable polymer together with the retinoic acid – not including a amphiphilic AB type di-block polymer. It is suggested Applicants define a lower limit for the amphiphilic block polymer, not including zero.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 6-8 are rejected under 35 U.S.C. 103(a) as being obvious over Gref et al. (US 5543158) in view of Rodgers et al. (US 5534261).

Gref et al disclose a controlled release microsphere in which biodegradable polymer and the instant amphiphilic block copolymer are mixed and an active agent is incorporated into the microsphere. The ratios of biodegradable polymer/block copolymer and active agent/microsphere are within the instant ratios. These microspheres are not rapidly cleared from the blood stream by the macrophages of the reticuloendothelial system. Gref et al. also teach that

biologically active molecules are contemplated to be delivered but does not teach that the active agent is retinoic acid.

Rodgers et al. teach controlled release microspheres made of polymers for controlled release of retinoids.

Absent unexpected results, it is the position of the examiner it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the composition of Gref by adding the retinoids taught by Rodgers because of the expectation of providing a delivery formulation for a retinoid that is not rapidly cleared from the blood stream by the macrophages of the reticuloendothelial system as taught by Gref.

9. Claims 1, 6-8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cha et al. (WO 97/15287) in combination with Rodgers et al. (5534261) and in further combination with Lippman et al. (1992).

Cha et al. disclose biodegradable polymeric microspheres that provide controlled release of an active agent. These microspheres comprise the instant amphiphilic block copolymer mixed with interferon-α. Cha does not teach delivery of retinoic acid with the instant microspheres.

Rodgers et al. teach controlled release microspheres made of polymers for controlled release of retinoids.

Lippman teaches co-administration of interferon-α and 13-cis-retinoic acid for treatment of squamous cell carcinoma of the cervix.

Absent unexpected results, it is the position of the examiner it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the composition of Cha by add the retinoic acid taught by Rodgers because of the expectation of

providing a controlled release formulation for treating squamous cell carcinoma of the cervix as taught by Lippman.

10. Claims 1, 6-8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cha et al. (5,665,428) in combination with Rodgers et al. (5534261) and in further combination with Lippman et al. (1992).

Cha et al. disclose biodegradable polymeric microspheres that provide controlled release of an active agent. These microspheres comprise the instant amphiphilic block copolymer mixed with interferon-α. Cha does not teach delivery of retinoic acid with the instant microspheres.

Rodgers et al. teach controlled release microspheres made of polymers for controlled release of retinoids.

Lippman teaches co-administration of interferon-α and 13-cis-retinoic acid for treatment of squamous cell carcinoma of the cervix.

Absent unexpected results, it is the position of the examiner it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the composition of Cha by add the retinoic acid taught by Rodgers because of the expectation of providing a controlled release formulation for treating squamous cell carcinoma of the cervix as taught by Lippman.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel M. Bennett whose telephone number is (703) 308-8779. The examiner can normally be reached on Monday through Friday, 8:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on (703) 308-2927. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.

rmb

THURMAN K. PAGE
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